dendritic cell

1. Follicular dendritic cells, found in germinal centres of spleen and lymph nodes, retain antigen for long periods.

2. Accessory (antigen presenting) cells, positive for Class II histocompatibility antigens, found in the red and white pulp of the spleen and lymph node cortex and associated with stimulating T-cell proliferation.

3. T lymphocyte found in epidermis and other epithelial cells involved in antigen recognition expressing predominantly __TCR receptors (dendritic epidermal cells: DECs). (4) Dopa positive cells derived from neural crest and found in the basal part of epidermis.

(13 Nov 1997)

Previous: dendrites, dendritic, dendritical, dendritic calculus, dendritic cataract
Next: dendritic cells, dendritic corneal ulcer, dendritic depolarisation

dendrite

A long, branching outgrowth or extension from a neuron, that carries electrical signals from synapses to the cell body, unlike an axon that carries electrical signals away from the cell body. Each nerve cell usually has many dendrites. This classical definition, however, lost some weight with the discovery of axo-axonal and dendro-dendritic synapses.

(29 Sep 1997)

Previous: denatured protein, dendrachate, dendraxon, dendriform, dendriform keratitis
Next: dendrites, dendritic, dendritical, dendritic calculus

dendritic

1. Branched like a tree.

2. Pertaining to or possessing dendrites.

(18 Nov 1997)

Previous: dendrachate, dendraxon, dendriform, dendriform keratitis, dendrite, dendrites
Next: dendritical, dendritic calculus, dendritic cataract, dendritic cell

Dendritic cell

From Wikipedia, the free encyclopedia.

Dendritic cells are immune cells and form part of the mammal immune system. They are present in those tissues which are in contact with the environment: in the skin (where they are often called **Langerhans cells**) and the lining of nose, lungs, stomach and intestines. They have long spiky arms, called dendrites, hence the name. (Neurons also have dendrites, but dendritic cells have nothing to do with neurons.)

Unfortunately, there are at least two different types of cells involved with immunity that are called dendritic cells. Most of the time, dendritic cell refers to myeloid dendritic cells that arise from monocytes. There are also follicular dendritic cells that are probably not of hematopoietic origin. Then there are plasmacytoid dendritic cells which appear to be another kind of myeloid cell that look like plasma cells, but have certain characteristics similar to myeloid dendritic cells.

Dendritic cells start out as immature Dendritic Cells. These cells are characterized by high endocytic activity and low T-cell activation potential. Dendritic cells constantly sample the surroundings for viruses and bacteria. Once they have come into contact with such a pathogen, they become activated into mature Dendritic Cells. Mature Dendritic Cells phagocytose pathogens and degrade its proteins into small pieces and present those fragments at their cell surface using MHC molecules. Simulataneously, they upregulate cell surface receptors that act as co-receptors in T-cell activation, greatly enhancing their ability to activate T-cells. They also upregulate CCR7, a chemotactic receptor that induces the Dendritic Cell to travel through the blood stream to the spleen or through the lymphatic system to a lymph node. Here they act as antigen presenting cells: they activate helper T-cells and killer T-cells as well as B-cells by presenting them with antigens derived from the pathogen.

Every helper T-cell is specific to one particular antigen. Only dendritic cells are able to activate a helper T-cell which has never encountered its antigen before.

Dendritic cells form from monocytes, white blood cells which circulate in the body and, depending on the right signal, can turn into dendritic cells or macrophages. The monocytes in turn are formed from stem cells in the bone marrow.

How long do they live?

HIV, which causes AIDS, is attracted by one particular kind of dendritic cell; when these get infected and then travel to lymph nodes, the virus is able to move to helper T-cells, and this infection of helper T-cells is the major cause of disease.

References

- Jacques Banchereau: *The Long Arm of the Immune System*, Scientific American Vol 287, No. 5 (November 2002), pp. 52 - 59

Categories: Blood and immune system cells